Research Update | February 2026

CONQUER CHIARI
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Surgical Outcomes Data From Over 500 Pediatric Patients

Last month we reported on the first part of a two-part publication from surgeons at Children's Hospital of Pittsburgh that involved over 500 pediatric Chiari patients who were treated over a 30-year period. This month we report on the second part of their publication which focused on surgical outcomes. The median follow-up time for the patients was 19 months.

More than half of the group had syrinxes found on imaging. For these patients the syrinxes resolved completely 31% of the time and were reduced in size 46% of the time. On the flip side, 16% were unchanged and roughly 8% got larger. Unfortunately, 7 new syrinxes developed during the follow-up period. Overall, 32 patients required reoperation for recurrent, worsening, or new syrinxes. Including the reoperations there was an 85% improvement in the size of syrinxes.

Sixty-three percent of the children experienced the classic Chiari strain-related headache in the back of the head. For this group, the headaches went away completely for 53% of them and improved for an additional 20%. The headaches were unchanged in 23% and got worse in 4%. Overall, there 10 reoperations due to headaches. About 10% of the children also suffered from gait or swallowing issues respectively. Surgery subjectively improved the gait issues 42% of the time and the swallowing issues 63% of the time.

Eighteen percent of the children also had scoliosis. The scoliosis improved or remained stable for nearly half of these children, but 24% required spinal fusion in addition to the Chiari decompression. The spinal fusion occurred and average of 13 months after the Chiari surgery.

Eight percent of the children were found to suffer from central sleep apnea after formal sleep studies. Chiari surgery significantly improved the central apnea index, reducing it from 5.4 to 1.6. Interestingly, the average age for children with sleep apnea was only 5 years compared to 10 years for the overall group.

The overall reoperation rate was 9% and 91% of the children who underwent reoperations only required one. Highlighting an issue that doesn't get much attention, 8% of the children experienced regrowth of the C1 bone that had been removed.

This study represents valuable information for parents as they weigh the often difficult decision of whether their child should undergo Chiari surgery.

Source: Nturibi EM, Piazza MG, Kim SL, et al. A retrospective single-center series on the surgical management and postoperative outcomes of pediatric Chiari malformation type I. Part 2: symptomatic outcomes and revision surgery. *J Neurosurg Pediatr*. Published online January 16, 2026. doi:10.3171/2025.6.PEDS22192

Conquer Chiari's research updates highlight and summarize interesting publications from the medical literature while providing background and context. The summaries do contain some medical terminology and assume a general understanding of Chiari. Introductory information and many more research articles can be found in the Conquer Chiari Library.